FIG. 1A-1
FIG. 1A-2

FIG. 1A

```
gtatttcata aaacagagag gatcgcagga ggccggcact ctgactcctg gtggatggga ctagggagtc agagtcaagc cctgactggc tgagggcggg cgctccgagt cagcATGGAA   120
                                                                                                                               M E
AGTCTCTGCG GGGTCCTGGT ATTTCTGCTG CTGGCTGCAG GACTGCCGCT CCAGGCGGCC AAGCGGTTCC GTGATGTGCT GGGCCATGAG CAGTATCCGG ATCACATGAG GGAGAACAAC   240
S L C G V L V F L L L A A G L P L Q A A K R F R D V L G H E Q Y P D H M R E N N
CAATTACGTG GCTGGTCTTC AGATGAAAAT GAATGGGATG AACAGCTGTA TCCAGTGTGG AGGAGGGGAG AGGGCAGATG GAAGGACTCC TGGGAAGGAG GCCGTGTGCA GGCAGCCCTA   360
Q L R G W S S D E N E W D E Q L Y P V W R R G E G R W K D S W E G G R V Q A A L
ACCAGTGATT CACCGGCCTT GGTGGGTTCC AATATCACCT TCGTAGTGAA CCTGGTGTTC CCCAGATGCC AGAAGGAAGA TGCCAACGGC AATATCGTCT ATGAGAGGAA CTGCAGAAGT   480
T S D S P A L V G S N I T F V V N L V F P R C Q K E D A N G N I V Y E R N C R S
GATTTGGAGC TGGCTTCTGA CCCGTATGTC TACAACTGGA CCACAGGGGC AGACGATGAG GACTGGGAAG ACAACACCAG CCAAGGCCAG CACCTCAGGT TCCCCGACGG GAAGCCCTTC   600
D L E L A S D P Y V Y N W T T G A D D E D W E D N T S Q G Q H L R F P D G K P F
CCTCGCCCCC ACGGACGGAA GAAATGGAAC TTCGTCTACG TCTTCCACAC ACTTGGTCAG TATTTTCAAA AGCTGGGTCA GTGTTCAGCA CGAGTTTCTA TAAACACAGT CAACTTGACA   720
P R P H G R K K W N F V Y V F H T L G Q Y F Q K L G Q C S A R V S I N T V N L T
GTTGGCCCTC AGGTCATGGA AGTGATTGTC TTTCGAAGAC ACGGCCGGGC ATACATTCCC ATCTCCAAAG TGAAAGACGT GTATGTGATA ACAGATCAGA TCCCTATATT CGTGACCATG   840
V G P Q V M E V I V F R R H G R A Y I P I S K V K D V Y V I T D Q I P I F V T M
TACCAGAAGA ATGACCGGAA CTCGTCTGAT GAAACCTTCC TCAGAGACCT CCCCATTTTC TTCGATGTCC TCATTCACGA TCCCAGTCAT TTCCTCAACT ACTCTGCCAT TTCCTACAAG   960
Y Q K N D R N S S D E T F L R D L P I F F D V L I H D P S H F L N Y S A I S Y K
```

FIG. 1A-1

```
TGGAACTTTG GGGACAACAC TGGCCTGTTT GTCTCCAACA ATCACACTTT GAATCACACG TATGTGCTCA ATGGAACCTT CAACTTTAAC CTCACCGTGC AAACTGCAGT GCCGGGACCA  1080
W  N  F  G  D  N  T  G  L  F  V  S  N  N  H  T  L  N  H  T  Y  V  L  N  G  T  F  N  F  N  L  T  V  Q  T  A  V  P  G  P
TGCCCCTCAC CCACACCTTC GCCTTCTTCT TCGACTTCTC CTTCGCCTGC ATCTTCGCCT TCACCCACAT TATCAACACC TAGTCCCTCT TTAATGCCTA CTGGCTACAA ATCCATGGAG  1200
C  P  S  P  T  P  S  P  S  S  S  T  S  P  S  P  A  S  S  P  S  P  T  L  S  T  P  S  P  S  L  M  P  T  G  Y  K  S  M  E
CTGAGTGACA TTTCCAATGA AAACTGCCGA ATAAACAGAT ATGGTTACTT CAGAGCCACC ATCACAATTG TAGATGGAAT CCTAGAAGTC AACATCATCC AGGTAGCAGA TGTCCCAATC  1320
L  S  D  I  S  N  E  N  C  R  I  N  R  Y  G  Y  F  R  A  T  I  T  I  V  D  G  I  L  E  V  N  I  I  Q  V  A  D  V  P  I
CCCACACTGC AGCCTGACAA CTCACTGATG GACTTCATTG TGACCTGCAA AGGGGCCACT CCCACGGAAG CCTGTACGAT CATCTCTGAC CCCACCTGCC AGATCGCCCA GAACAGGGTG  1440
P  T  L  Q  P  D  N  S  L  M  D  F  I  V  T  C  K  G  A  T  P  T  E  A  C  T  I  I  S  D  P  T  C  Q  I  A  Q  N  R  V
TGCAGCCCCG TGGCTGTGGA TGAGCTGTGC CTCCTGTCCG TGAGGAGAGC CTTCAATGGG TCCGGCACGT ACTGTGTGAA TTTCACTCTG GGAGACGATG CAAGCCTGGC CCTCACCAGC  1560
C  S  P  V  A  V  D  E  L  C  L  L  S  V  R  R  A  F  N  G  S  G  T  Y  C  V  N  F  T  L  G  D  D  A  S  L  A  L  T  S
GCCCTGATCT CTATCCCTGG CAAAGACCTA GGCTCCCCTC TGAGAACAGT GAATGGTGTC CTGATCTCCA TTGGCTGCCT GGCCATGTTT GTCACCATGG TTACCATCTT GCTGTACAAA  1680
A  L  I  S  I  P  G  K  D  L  G  S  P  L  R  T  V  N  G  V  L  I  S  I  G  C  L  A  M  F  V  T  M  V  T  I  L  L  Y  K
AAACACAAGA CGTACAAGCC AATAGGAAAC TGCACCAGGA ACGTGGTCAA GGGCAAAGGC CTGAGTGTTT TTCTCAGCCA TGCAAAAGCC CCGTTCTCCC GAGGAGACCG GGAGAAGGAT  1800
K  H  K  T  Y  K  P  I  G  N  C  T  R  N  V  V  K  G  K  G  L  S  V  F  L  S  H  A  K  A  P  F  S  R  G  D  R  E  K  D
CCACTGCTCC AGGACAAGCC ATGGATGCTC TAAgtcttca ctctcacttc tgactgggaa cccactcttc tgtgcatgta tgtgagctgt gcagaagtac atgactggta gctgttgttt  1920
P  L  L  Q  D  K  P  W  M  L  .
tctacggatt attgtaaaat gtatatcatg gtttaggggg tgtagttaat tggcatttta gtgaagggat gggaagacag tatttcttcg catctgtatt gtggttttta tactgttaat  2040

agggtgggca cattgtgtct gaaggggggg ggggaggtca ctgctactta aggtcctagg ttaactggga gaggatgccc caggctcctt agatttctac acaagatgtg cctgaaccca  2160

gctagtcctg acctaaaggc catgcttcat caactctatc tcagctcatt gaacatacct gagcgcctga tggaattata atggaaccaa gcttgttgta tggtgtgtgt gtgtacataa  2280

gatactcatt aaaaagacag tctattaaaa aaaaaaaaaa                                                                                      2320
```

FIG. 1A-2

EXON	BAC Start	BAC Stop	cDNA Start	cDNA Stop	Exon Length
1	83294	83455	1	162	162
2	89834	89986	163	314	152
3	90696	90839	315	458	144
4	93419	93594	459	634	176
5	96509	96665	635	791	157
6	96983	97300	792	1109	318
7	103044	103142	1110	1208	99
8	104413	104515	1209	1311	103
9	106494	106702	1312	1520	209
10	110048	110141	1521	1614	94
11	110592	111633	1615	2656	1042

poly A signal is position 111614-111619

translation start (ATG) is:
cDNA: 92
Gene: 83385

FIG. 1B

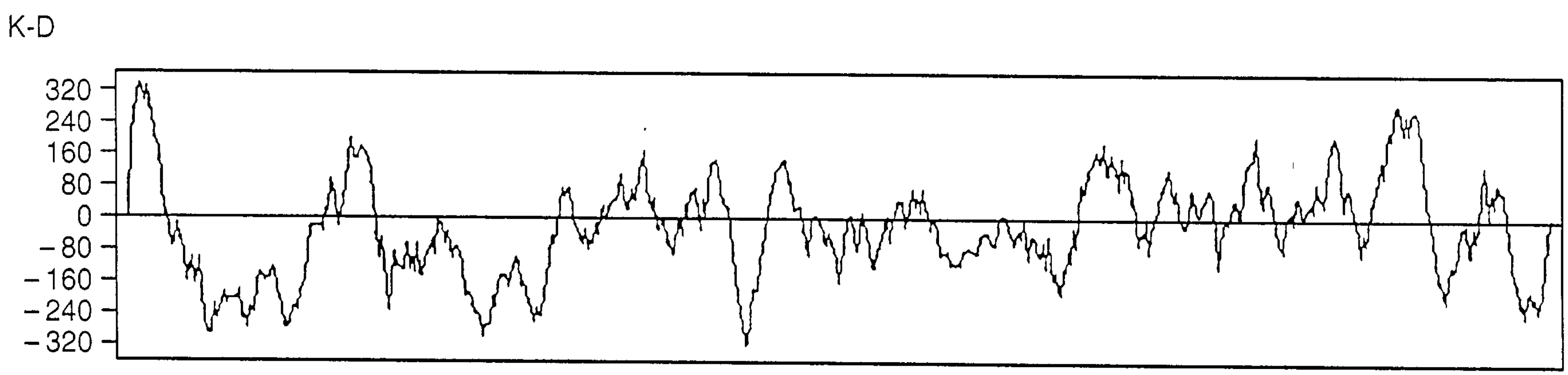


FIG. 1C

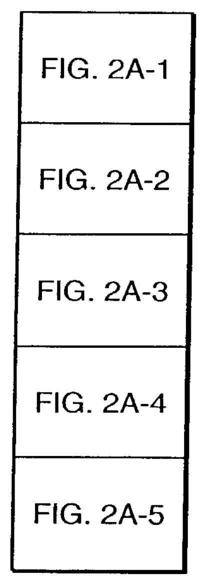


FIG. 2A

```
rat    ATGGAAAGTC TCTGCGGGGT CCTGGTATTT CTGCTGCTGG CTGCAGGACT GCCGCTCCAG GCGGCCAAGC GGTTC   75
mouse  ATGGAAAGTC TCTGCGGGGT CCTGGGATTT CTGCTGCTGG CTGCAGGACT GCCTCTCCAG GCTGCCAAGC GATTT   75
human  ATGGAAAGTC TCTACTATTT CCTGGGATTT CTGCTCCTGG CTGCAAGATT GCCACTTGAT GCCCCCAAAC GATTT   75

rat    CGTGATGTGC TGGGCCATGA GCAGTATCCG GATCACATGA GGGAGAACAA CCAATTACGT GGCTGGTCTT CAGAT  150
mouse  CGTGATGTGC TGGGCCATGA ACAGTATCCC GATCACATGA GAGAGCACAA CCAATTACGT GGCTGGTCTT CGGAT  150
human  CATGATGTGC TGGGCAATGA AAGACCTTCT GCTTACATGA GGGAGCACAA TCAATTAAAT GGCTGGTCTT CTGAT  150

rat    GAAAATGAAT GGGATGAACA GCTGTATCCA GTGTGGAGGA GGGGAGAGGG CAGATGGAAG GACTCCTGGG AAGGA  225
mouse  GAAAATGAAT GGGATGAACA CCTGTATCCA GTGTGGAGGA GGGGAGACGG CAGGTGGAAG GACTCCTGGG AAGGA  225
human  GAAAATGACT GGAATGAAAA ACTCTACCCA GTGTGGAAGC GGGGAGACAT GAGGTGGAAA AACTCCTGGA AGGGA  225

rat    GGCCGTGTGC AGGCAGCCCT AACCAGTGAT TCACCGGCCT TGGTGGGTTC CAATATCACC TTCGTAGTGA ACCTG  300
mouse  GGCCGTGTGC AGGCAGTCCT GACCAGTGAC TCACCGGCTC TGGTGGGTTC CAATATCACT TTTGTGGTGA ACCTG  300
human  GGCCGTGTGC AGGCGGTCCT GACCAGTGAC TCACCAGCCC TCGTGGGCTC AAATATAACA TTTGCGGTGA ACCTG  300
```

FIG. 2A-1

```
rat    GTGTTCCCCA GATGCCAGAA GGAAGATGCC AACGGCAATA TCGTCTATGA GAGGAACTGC AGAAGTGATT TGGAG   375
mouse  GTGTTCCCCA GATGCCAGAA GGAAGATGCT AATGGCAATA TCGTCTATGA GAAGAACTGC AGGAATGATT TGGGA   375
human  ATATTCCCTA GATGCCAAAA GGAAGATGCC AATGGCAACA TAGTCTATGA GAAGAACTGC AGAAATGAGG CTGGT   375

rat    CTGGCTTCTG ACCCGTATGT CTACAACTGG ACCACAGGGG CAGACGATGA GGACTGGGAA GACAACACCA GCCAA   450
mouse  CTGACATCTG ACCTGCATGT CTACAACTGG ACTGCAGGGG CAGATGATGG TGACTGGGAA GATGGCACCA GCCGA   450
human  TTATCTGCTG ATCCATATGT TTACAACTGG ACAGCATGGT CAGAGGACAG TGACGGGGAA AATGGCACCG GCCAA   450

rat    GGCCAGCACC TCAGGTTCCC CGACGGGAAG CCCTTCCCTC GCCCCCACGG ACGGAAGAAA TGGAACTTCG TCTAC   525
mouse  AGCCAGCATC TCAGGTTCCC GGACAGGAGG CCCTTCCCTC GCCCCCATGG ATGGAAGAAA TGGAGCTTTG TCTAC   525
human  AGCCATCATA ACGTCTTCCC TGATGGGAAA CCTTTTCCTC ACCACCCCGG ATGGAGAAGA TGGAATTTCA TCTAC   525

rat    GTCTTCCACA CACTTGGTCA GTATTTTCAA AAGCTGGGTC AGTGTTCAGC ACGAGTTTCT ATAAACACAG TCAAC   600
mouse  GTCTTTCACA CACTTGGCCA GTATTTCCAA AAACTGGGTC GGTGTTCAGC ACGGGTTTCT ATAAACACAG TCAAC   600
human  GTCTTCCACA CACTTGGTCA GTATTTCCAG AAATTGGGAC GATGTTCAGT GAGAGTTTCT GTGAACACAG CCAAT   600

rat    TTGACAGTTG GCCCTCAGGT CATGGAAGTG ATTGTCTTTC GAAGACACGG CCGGGCATAC ATTCCCATCT CCAAA   675
mouse  TTGACAGCTG GCCCTCAGGT CATGGAAGTG ACTGTCTTTC GAAGATACGG CCGGGCATAC ATTCCCATCT CGAAG   675
human  GTGACACTTG GGCCTCAACT CATGGAAGTG ACTGTCTACA GAAGACATGG ACGGGCATAT GTTCCCATCG CACAA   675
```

FIG. 2A-2

```
rat    GTGAAAGACG TGTATGTGAT AACAGATCAG ATCCCTATAT TCGTGACCAT GTACCAGAAG AATGACCGGA ACTCG   750
mouse  GTGAAAGATG TGTATGTGAT AACAGATCAG ATCCCTGTAT TCGTGACCAT GTCCCAGAAG AATGACAGGA ACTTG   750
human  GTGAAAGATG TGTACGTGGT AACAGATCAG ATTCCTGTGT TTGTGACTAT GTTCCAGAAG AACGATCGAA ATTCA   750

rat    TCTGATGAAA CCTTCCTCAG AGACCTCCCC ATTTTCTTCG ATGTCCTCAT TCACGATCCC AGTCATTTCC TCAAC   825
mouse  TCTGATGAGA TCTTCCTCAG AGACCTCCCC ATCGTCTTCG ATGTCCTCAT TCATGATCCC AGCCACTTCC TCAAC   825
human  TCCGACGAAA CCTTCCTCAA AGATCTCCCC ATTATGTTTG ATGTCCTGAT TCATGATCCT AGCCACTTCC TCAAT   825

rat    TACTCTGCCA TTTCCTACAA GTGGAACTTT GGGGACAACA CTGGCCTGTT TGTCTCCAAC AATCACACTT TGAAT   900
mouse  GACTCTGCCA TTTCCTACAA GTGGAACTTT GGGGACAACA CTGGCCTGTT TGTCTCCAAC AATCACACTT TGAAT   900
human  TATTCTACCA TTAACTACAA GTGGAGCTTC GGGGATAATA CTGGCCTGTT TGTTTCCACC AATCATACTG TGAAT   900

rat    CACACGTATG TGCTCAATGG AACCTTCAAC TTTAACCTCA CCGTGCAAAC TGCAGTGCCG GG-------- -ACCA   966
mouse  CACACTTATG TGCTCAATGG AACCTTCAAC CTTAACCTCA CCGTGCAAAC TGCAGTGCCC GG-------- -GCCA   966
human  CACACGTATG TGCTCAATGG AACCTTCAGC CTTAACCTCA CTGTGAAAGC TGCAGCACCA GGACCTTGTC CGCCA   975

rat    -TGCC-CC-T CACCCACACC TTCGCCTTCT TCTTCGACTT CTCCTTC--- ---GCCTGCA TCTTCGCCTT CA---   1029
mouse  -TGCC-C--T --CCC---CC TTCGCCTTCG ACTCCGCCTT CACCTTCAAC TCCGCCCTTA CCTTCGCCCT CACCT   1032
human  CCGCCACCAC CACCCAGACC TTC------- ---------- -------AA- ---------A ---------- -ACC-   1004
```

FIG. 2A-3

```
rat    ---CCCACAT TATCAACACC TAGTCCCTCT TTAATGCCTA CTGGCTACAA ATCCATGGAG CTGAGTGACA TTTCC    1101
mouse  TTGCCCACAT TATCAACACC TAGCCCCTCT TTAATGCCTA CTGGTTACAA ATCCATGGAG CTGAGTGACA TTTCC    1107
human  ---------- ------CACC ----CCTTCT TTAGGACCTG CTGGTGACAA CCCCCTGGAG CTGAGTAGGA TTCCT    1059

rat    AATGAAAACT GCCGAATAAA CAGATAAGGT TACTTCAGAG CCACCATCAC AATTGTAGAT GGAATCCTAG AAGTC    1176
mouse  AATGAAAACT GCCGAATAAA CAGATAAGGC TACTTCAGAG CCACCATCAC AATTGTAGAG GGGATCCTGG AAGTC    1182
human  GATGAAAACT GCCAGATTAA CAGATAAGGC TACTTTCAAG CCACCATCAC AATTGTAGAG GGAATCTTAG AGGTT    1134

rat    AACATCATCC AGGTAGCAGA TGTCCCAATC CCCACACTGC AGCCTGACAA CTCACTGATG GACTTCATTG TGACC    1251
mouse  AGCATCATGC AGATAGCAGA TGTCCCCATG CCCACACCGC AGCCTGCCAA CTCCCTGATG GACTTCACTG TGACC    1257
human  AACATCATCC AGATGACAGA CGTCCTGATG CCGGTGCCAT GGCCTGAAAG CTCCCTAATA GACTTTGTCG TGACC    1209

rat    TGCAAAGGGG CCACTCCCAC GGAAGCCTGT ACGATCATCT CTGACCCCAC CTGCCAGATC GCCCAGAACA GGGTG    1326
mouse  TGCAAAGGGG CCACCCCCAT GGAAGCCTGT ACGATCATCT CCGACCCCAC CTGCCAGATC GCCCAGAACC GGGTC    1332
human  TGCCAAGGGA GCATTCCCAC GGAGGTCTGT ACCATCATTT CTGACCCCAC CTGCGAGATC ACCCAGAACA CAGTC    1284

rat    TGCAGCCCGG TGGCTGTGGA TGAGCTGTGC CTCCTGTCCG TGAGGAGAGC CTTCAATGGG TCCGGCACGT ACTGT    1401
mouse  TGCAGCCCTG TGGCTGTGGA TGGGCTGTGC CTGCTGTCTG TGAGAAGAGC CTTCAATGGG TCTGGCACCT ACTGT    1407
human  TGCAGCCCTG TGGATGTGGA TGAGATGTGT CTGCTGACTG TGAGACGAAC CTTCAATGGG TCTGGGACGT ACTGT    1359
```

FIG. 2A-4

```
rat    GTGAATTTCA CTCTGGGAGA CGATGCAAGC CTGGCCCTCA CCAGCGCCCT GATCTCTATC CCTGGCAAAG ACCTA    1476
mouse  GTGAATTTCA CTCTGGGAGA TGATGCAAGC CTGGCCCTCA CCAGCACCCT GATCTCTATC CCTGGCAAAG ACCCA    1482
human  GTGAACCTCA CCCTGGGGGA TGACACAAGC CTGGCTCTCA CGAGCACCCT GATTTCTGTT CCTGACAGAG ACCCA    1434

rat    GGCTCCCCTC TGAGAACAGT GAATGGTGTC CTGATCTCCA TTGGCTGCCT GGCCATGTTT GTCACCATGG TTACC    1551
mouse  GACTCCCCTC TGAGAGCAGT GAATGGTGTC CTGATCTCCA TCGGCTGCCT GGCTGTGCTT GTCACCATGG TTACC    1557
human  GCCTCGCCTT TAAGGATGGC AAACAGTGCC CTGATCTCCG TTGGCTGCTT GGCCATATTT GTCACTGTGA TCTCC    1509

rat    ATCTTGCTGT ACAAAAAACA CAAGACGTAC AAGCCAATAG GAAACTGCAC CAGGAACGTG GTCAAGGGCA AAGGC    1626
mouse  ATCTTGCTGT ACAAAAAACA CAAGGCGTAC AAGCCAATAG GAAACTGCCC CAGGAACACG GTCAAGGGCA AGGGC    1632
human  CTCTTGGTGT ACAAAAAACA CAAGGAATAC AACCCAATAG AAAATAGTCC TGGGAATGTG GTCAGAAGCA AAGGC    1584

rat    CTGAGTGTTT TTCTCAGCCA TGCAAAAGCC CCGTTCTCCC GAGGAGACCG GGAGAAGGAT CCACTGCTCC AGGAC    1701
mouse  CTGAGTGTTC TCCTCAGTCA CGCGAAAGCC CCGTTCTTCC GAGGAGACCA GGAGAAGGAT CCATTGCTCC AGGAC    1707
human  CTGAGTGTCT TTCTCAACCG TGCAAAAGCC GTGTTCTTCC CGGGAAACCA GGAAAAGGAT CCGCTACTC- ---AA    1655

rat    AAGCCATGGA TGCTCTAA-- ---------- -    1719
mouse  AAGCCAAGGA CACTCTAA-- ---------- -    1725
human  AAACCAAGAA ---TTTAAAG GAGTTTCTTA A    1683
```

FIG. 2A-5

FIG. 2B-1
FIG. 2B-2

FIG. 2B

rat	MESLCGVLVF	LLLAAGLPLQ	AAKRFRDVLG	HEQYPDHMRE	NNQLRGWSSD	50
mouse	MESLCGVLGF	LLLAAGLPLQ	AAKRFRDVLG	HEQYPDHMRE	HNQLRGWSSD	50
human	MECLYYFLGF	LLLAARLPLD	AAKRFHDVLG	NERPSAYMRE	HNQLNGWSSD	50
rat	ENEWDEQLYP	VWRRGEGRWK	DSWEGGRVQA	ALTSDSPALV	GSNITFVVNL	100
mouse	ENEWDEHLYP	VWRRGDGRWK	DSWEGGRVQA	VLTSDSPALV	GSNITFVVNL	100
human	ENDWNEKLYP	VWKRGDMRWK	NSWKGGRVQA	VLTSDSPALV	GSNITFAVNL	100
rat	VFPRCQKEDA	NGNIVYERNC	RSDLELASDP	YVYNWTTGAD	DEDWEDNTSQ	150
mouse	VFPRCQKEDA	NGNIVYEKNC	RNDLGLTSDL	HVYNWTAGAD	DGDWEDGTSR	150
human	IFPRCQKEDA	NGNIVYEKNC	RNEAGLSADP	YVYNWTAWSE	DSDGENGTGQ	150
rat	GQHLRFPDGK	PFPRPHGRKK	WNFVYVFHTL	GQYFQKLGQC	SARVSINTVN	200
mouse	SQHLRFPDRR	PFPRPHGWKK	WSFVYVFHTL	GQYFQKLGRC	SARVSINTVN	200
human	SHHNVFPDGK	PFPHHPGWRR	WNFIYVFHTL	GQYFQKLGRC	SVRVSVNTAN	200
rat	LTVGPQVMEV	IVFRRHGRAY	IPISKVKDVY	VITDQIPIFV	TMYQKNDRNS	250
mouse	LTAGPQVMEV	TVFRRYGRAY	IPISKVKDVY	VITDQIPVFV	TMSQKNDRNL	250
human	VTLGPQLMEV	TVYRRHGRAY	VPIAQVKDVY	VVTDQIPVFV	TMFQKNDRNS	250
rat	SDETFLRDLP	IFFDVLIHDP	SHFLNYSAIS	YKWNFGDNTG	LFVSNNHTLN	300
mouse	SDEIFLRDLP	IVFDVLIHDP	SHFLNDSAIS	YKWNFGDNTG	LFVSNNHTLN	300
human	SDETFLKDLP	IMFDVLIHDP	SHFLNYSTIN	YKWSFGDNTG	LFVSTNHTVN	300

FIG. 2B-1

```
rat   HTYVLNGTFN FNLTVQTAVP GPCPSPTPS- -PSSSTSPSP ASSPSPTLST  348
mouse HTYVLNGTFN LNLTVQTAVP GPCPPPSPST PPSPSTPPLP SPSPLPTLST  350
human HTYVLNGTFS LNLTVKAAAP GPCPPPPP-- ------PPRP --------SK  334

rat   PSPSLMPTGY KSMELSDISN ENCRINRYGY FRATITIVDG ILEVNIIQVA  398
mouse PSPSLMPTGY KSMELSDISN ENCRINRYGY FRATITIVEG ILEVSIMQIA  400
human PTPSLGPAGD NPLELSRIPD ENCQINRYGH FQATITIVEG ILEVNIIQMT  384

rat   DVPIPTLQPD NSLMDFIVTC KGATPTEACT IISDPTCQIA QNRVCSPVAV  448
mouse DVPMPTPQPA NSLMDFTVTC KGATPMEACT IISDPTCQIA QNRVCSPVAV  450
human DVLMPVPWPE SSLIDFVVTC QGSIPTEVCT IISDPTCEIT QNTVCSPVDV  434

rat   DELCLLSVRR AFNGSGTYCV NFTLGDDASL ALTSALISIP GKDLGSPLRT  498
mouse DGLCLLSVRR AFNGSGTYCV NFTLGDDASL ALTSTLISIP GKDPDSPLRA  500
human DEMCLLTVRR TFNGSGTYCV NLTLGDDTSL ALTSTLISVP DRDPASPLRM  484

rat   VNGVLISIGC LAMFVTMVTI LLYKKHKTYK PIGNCTRNVV KGKGLSVFLS  548
mouse VNGVLISIGC LAVLVTMVTI LLYKKHKAYK PIGNCPRNTV KGKGLSVLLS  550
human ANSALISVGC LAIFVTVISL LVYKKHKEYN PIENSPGNVV RSKGLSVFLN  534

rat   HAKAPFSRGD REKDPLLQDK PW--ML  572
mouse HAKAPFFRGD QEKDPLLQDK PR--TL  574
human RAKAVFFPGN QEKDPLLKNQ EFKGVS  560
```

FIG. 2B-2

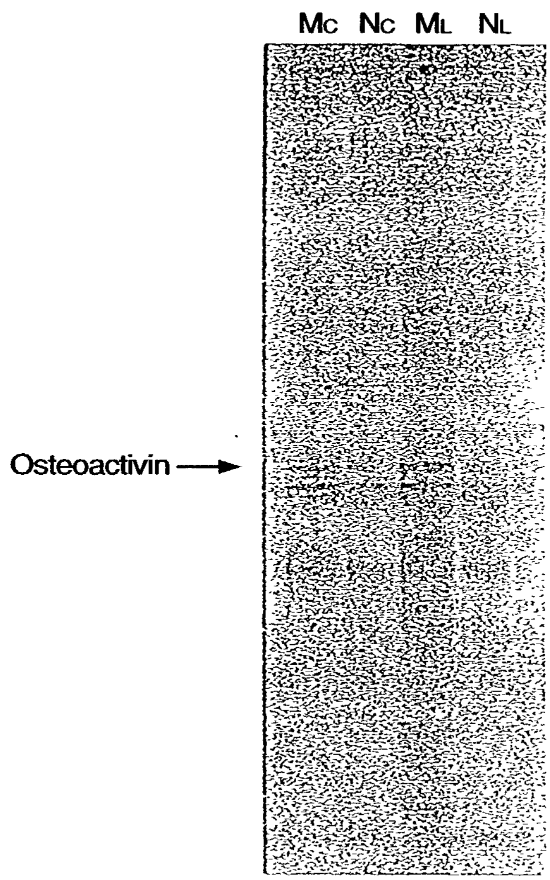


FIG. 3

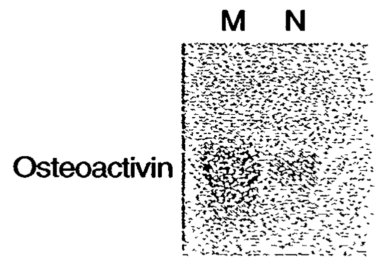


FIG. 4A

FIG. 4B

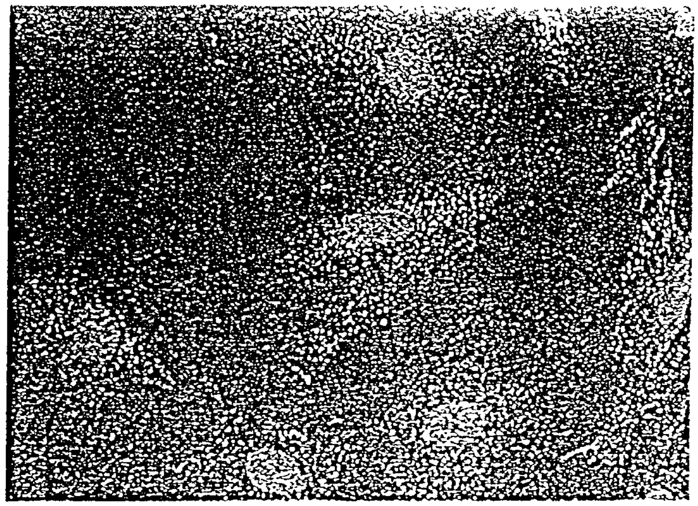


FIG. 5

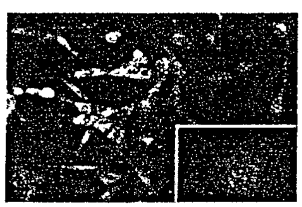


FIG. 5A

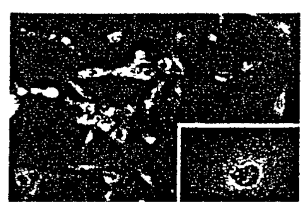


FIG. 5B

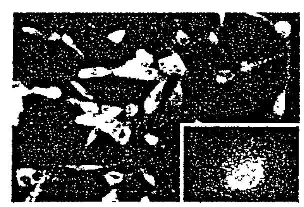


FIG. 5C

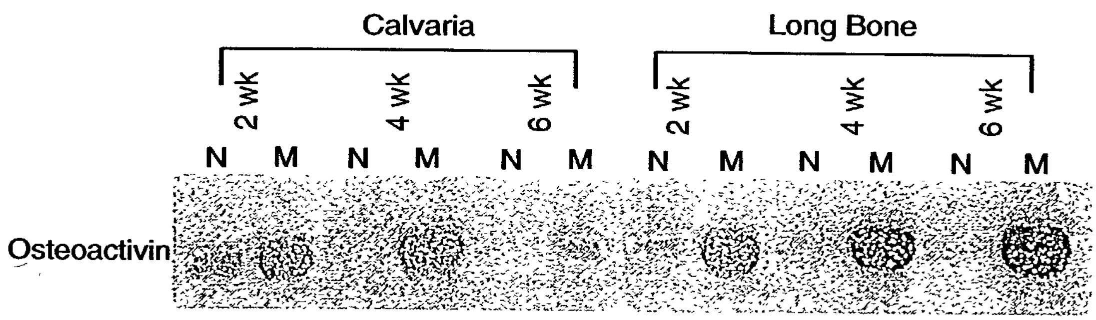

Calvaria
Long Bone
2 wk
4 wk
6 wk
2 wk
4 wk
6 wk
N M N M N M N M N M N M
Osteoactivin

FIG. 6

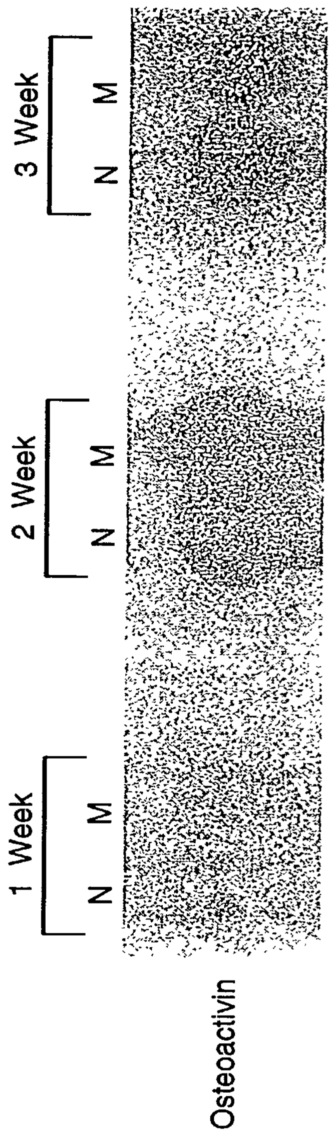

1 Week
N M
2 Week
N M
3 Week
N M
Osteoactivin

FIG. 7A

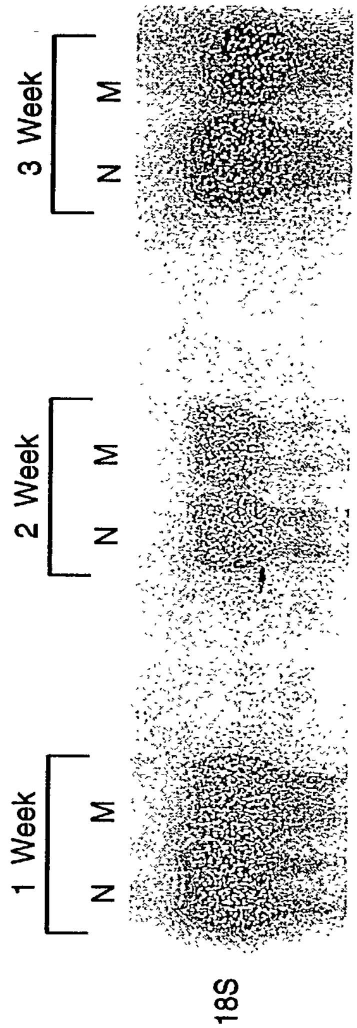

1 Week
N M
2 Week
N M
3 Week
N M
18S

FIG. 7B

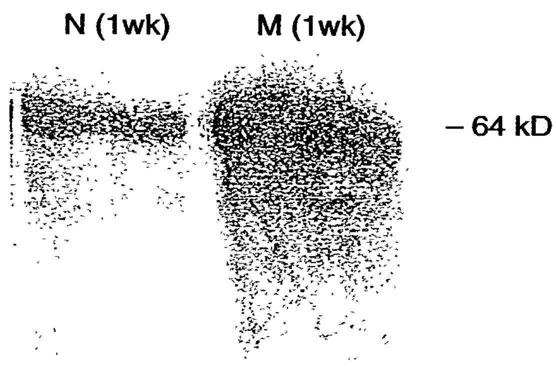
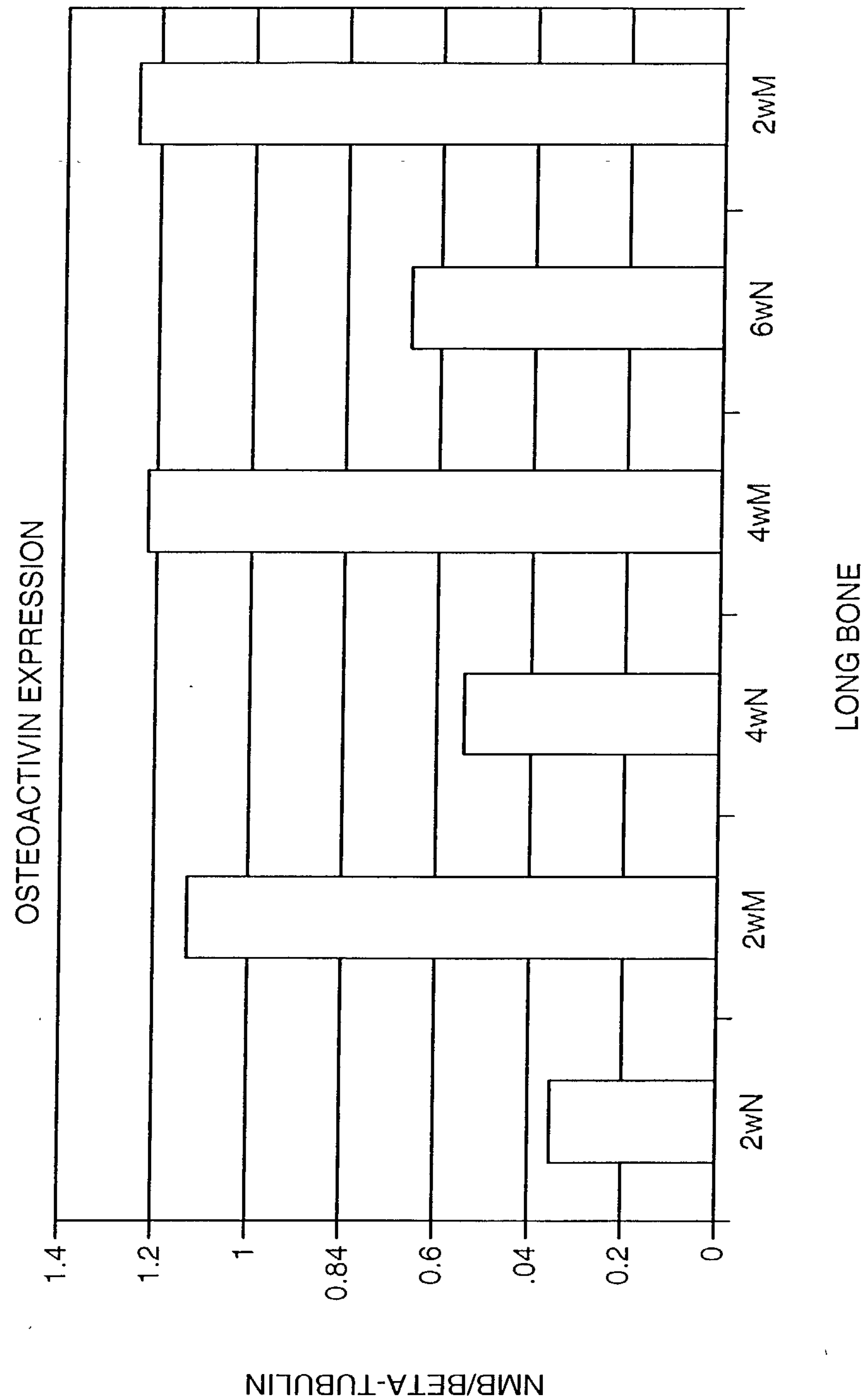


FIG. 8



OSTEOACTIVIN EXPRESSION
NMB/BETA-TUBULIN
1.4
1.2
1
0.84
0.6
.04
0.2
0
2wN
2wM
4wN
4wM
6wN
2wM
LONG BONE

FIG. 9

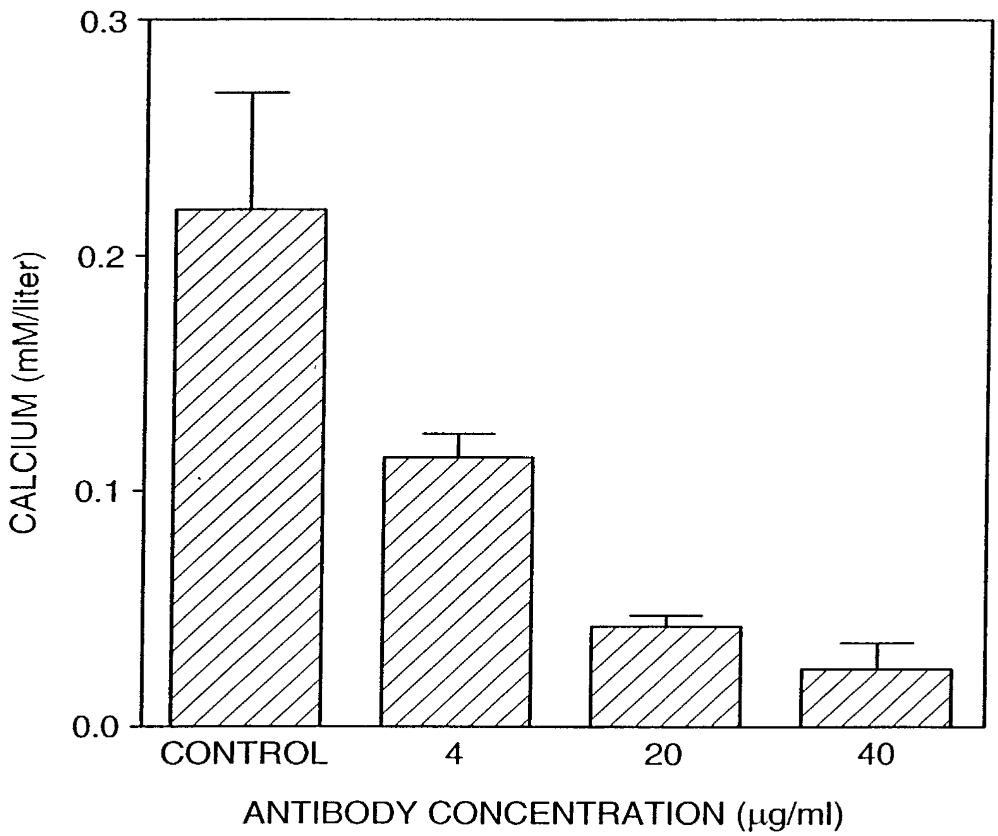

0.3
0.2
0.1
0.0
CALCIUM (mM/liter)
CONTROL
4
20
40
ANTIBODY CONCENTRATION (μg/ml)

FIG. 10